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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/872,827	05/31/2001	Iqbal A. Goralwalla	CA920000033/2033P	3709

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EXAMINER	
WONG, LESLIE	
ART UNIT	**PAPER NUMBER**
2177	6

DATE MAILED: 05/24/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/872,827	GORALWALLA ET AL.	
	Examiner	Art Unit	
	Leslie Wong	2177	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *08 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *31 May 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Request for Reconsideration

1. Receipt of Applicant's Request for Reconsideration, filed 08 March 2004, is acknowledged.

Specification

2. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

3. The abstract of the disclosure is objected to because it contains the language: "the present invention". Correction is required. See MPEP § 608.01(b).

4. The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

Drawings

5. The subject matter of this application admits of illustration by a drawing to facilitate understanding of the invention. Applicant is required to furnish a drawing under 37 CFR 1.81. No new matter may be introduced in the required drawing.

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the following must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

a). providing an identifier to each data page, the identifier indicating when any of the data records contained therein were last modified;

b). selecting a data record from a data page;

c). copying the selected data record to a second storage area;

d). verifying that the selected data record has not been modified since the time that it was copied to the second storage area based upon the identifier;

e). determine a current identifier for the data page;

f). comparing the current identifier with the store identifier;

g). concluding the selected data record has not been modified when the current identifier is the same as the store identifier;

h). the identifier comprises the time stamp;

i). the command is a positioned UPDATE and DELETE command in a relational database system supporting scrollable cursors and optimistic concurrency;

j). a flowchart to illustrate the embodiments of the present invention.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 1-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over **Josten et al.** ("**Josten**")(U.S. Patent 5,574,902) in view of **Ponnekanti** (U.S. Patent 6,591,269).

Regarding claim 1, **Josten** teaches a method for optimizing command execution in a database system, wherein data records are stored on a plurality of data pages therein (col. 5, line 65 – col. 6, line 6), the method comprising the steps of:

a). **'providing an identifier to each data page'** as an ordinal number (ORD#) is assigned to a data page buffer control block (BCB) in dirty page list (DPL) (col. 7, lines 10-16 and 42-52; col. 11, lines 44-46, and Fig. 2, element 44 (i.e., ordinal #));

b). **'selecting a data record from a data page'** as list 42 includes a series of the ordinal number from DPL that are associated with data pages in the LCB that were accessed by the transaction corresponding to TPL-1 (col.7, line 53 - col. 8, line 2; col. 5, lines 5-10; col. 7, lines 10-16; col. 8, lines 1-7; col. 8, lines 46-51);

c). **'copying the selected data record to a second storage area'** as the data manager issues a SETWRITE request to indicate intent to update the named data page (col. 7, lines 10-16; col. 8, lines 9-18);

d). **'verifying that the selected data record has not been modified since the time that it was copied to the second storage area based upon the identifier'** as a test is made to detect a consecutive update to the same data page by comparing the ORD# of the last entry of the transaction page list (TPL) with the ORD# of the new entry in the buffer control block (col. 11, lines 28-38); and

e). **'executing the command'** as committing transactions schedules write-I/Os for all TPL entries (col. 18, lines 3-7).

a). **Josten** does not explicitly teach the identifier indicating when any of the data records contained therein were last modified.

Ponnekanti, however, teaches the log records contain only the PAGEIDs and the timestamps of the source page and the target page and the positions of the first and the last key that were copied (col. 11, lines 47-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of the cited references because **Ponnekanti's** teaching would have allowed **Josten's** to enhance the speed in which the database server stores, retrieves, and processes particular data records as indicated by **Ponnekanti** at col. 3, lines 1-10 and col. 19, lines 40-50.

Regarding claims 2 and 10, **Josten** further teaches wherein the copying step (c) includes:

(c1) copying and storing the identifier to the second storage area (col. 4, lines 27-32 and col. 7, line 57 – col. 8, line 2).

Regarding claims 3 and 11, **Josten** further teaches wherein the verifying step (d) includes:

(d1) determining a current identifier for the data page (col. 11, lines 28-31);

(d2) comparing the current identifier with the stored identifier (col. 11, lines 34-36); and

(d3) concluding the selected data record has not been modified when the current identifier is the same as the stored identifier (col. 11, lines 36-38).

Regarding claims 4 and 12, **Josten** further teaches wherein the verifying step (d) further includes:

(d4) determining whether the selected data record has not been modified when the current identifier is not the same as the stored identifier by (col. 11, lines 36-38):

(d4a) accessing a current version of the selected data record on the data page (col. 11, lines 28-31; col. 7, lines 46-52 and col. 7, line 60 – col. 8, line 2); and

(d4b) comparing the selected data record with the current version of the selected data record (col. 11, lines 34-38; col. 13, lines 62-67).

Regarding claims 5, 14, and 21, **Josten** does not explicitly teach wherein the identifier comprises a time stamp.

Ponnekanti, however, teaches wherein the identifier comprises a time stamp (col. 11, lines 47-49).

Regarding claims 6, 13, and 20, **Josten** further teaches wherein the identifier comprises a log sequence number (LSN) (col. 15, lines 1-4 and col. 16, lines 10-12).

Regarding claims 7, 15, and 18, **Josten** further teaches wherein the second storage area is a temporary data record in a temporary table (SES as RAM or temporary table col. 5, lines 56-59 and claim 1a).

Regarding claims 8, 16, and 19, **Josten** does not explicitly teach wherein the command is a positioned UPDATE and DELETE command in a relational database system supporting scrollable cursors and optimistic concurrency.

Ponnekanti, however, teaches wherein the command is a positioned UPDATE and DELETE command in a relational database system supporting scrollable cursors and optimistic concurrency (col. 13, line 40 – col. 16, line 33).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of the cited references because **Ponnekanti's** teaching would have allowed **Josten's** to provide high concurrency, does minimal logging, and has good performance as indicated by **Ponnekanti** at col. 19, lines 40-50.

Regarding claim 9, **Josten** teaches a computer readable medium containing programming instructions for optimizing command execution in a database system, wherein data records are stored on a plurality of data pages therein, the programming instructions for:

a). **'providing an identifier to each data page'** as an ordinal number (ORD#) is assigned to a data page buffer control block (BCB) in dirty page list (DPL)

(col. 7, lines 10-16 and 42-52; col. 11, lines 44-46, and Fig. 2, element 44 (i.e., ordinal #));

b). **'selecting a data record from a data page'** as list 42 includes a series of the ordinal number from DPL that are associated with data pages in the LCB that were accessed by the transaction corresponding to TPL-1 (col.7, line 53 - col. 8, line 2; col. 5, lines 5-10; col. 7, lines 10-16; col. 8, lines 1-7; col. 8, lines 46-51);

c). **'copying the selected data record to a second storage area'** as the data manager issues a SETWRITE request to indicate intent to update the named data page (col. 7, lines 10-16; col. 8, lines 9-18);

d). **'verifying that the selected data record has not been modified since the time that it was copied to the second storage area based upon the identifier'** as a test is made to detect a consecutive update to the same data page by comparing the ORD# of the last entry of the transaction page list (TPL) with the ORD# of the new entry in the buffer control block (col. 11, lines 28-38); and

e). **'executing the command'** as committing transactions schedules write-I/Os for all TPL entries (col. 18, lines 3-7).

a). **Josten** does not explicitly teach the identifier indicating when any of the data records contained therein were last modified.

Ponnekanti, however, teaches the log records contain only the PAGEIDs and the timestamps of the source page and the target page and the positions of the first and the last key that were copied (col. 11, lines 47-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of the cited references because **Ponnekanti's** teaching would have allowed **Josten's** to enhance the speed in which the database server stores, retrieves, and processes particular data records as indicated by **Ponnekanti** at col. 3, lines 1-10 and col. 19, lines 40-50.

Regarding claim 17, **Josten** teaches a relational database management system comprising:

a). **'data records stored on a plurality of data pages'** as another transaction may be updating other records on the same page and efficient searching of DPL for data pages to be externalized (Fig. 2, elements 37 and 38; col. 7, line 60 – col. 8, line 2; col. 10, lines 32-47);

b). **'means for providing an identifier on each data page'** as an ordinal number (ORD#) is assigned to a data page buffer control block (BCB) in dirty page list (DPL) (col. 7, lines 10-16 and 42-52; col. 11, lines 44-46, and Fig. 2, element 44 (i.e., ordinal #));

c). **'means for selecting a data record from a data page'** as list 42 includes a series of the ordinal number from DPL that are associated with data pages in the LCB that were accessed by the transaction corresponding to TPL-1 (col.7, line 53 - col. 8, line 2; col. 5, lines 5-10; col. 7, lines 10-16; col. 8, lines 1-7; col. 8, lines 46-51);

d). **'means for copying and storing the selected data record and the identifier from the data page to a second storage area'** as the data manager issues

a SETWRITE request to indicate intent to update the named data page (col. 7, lines 10-16; col. 8, lines 9-18);

e). **'means for determining a current identifier from the data page'** as test the ORD# entry in DPL against the ORD# entry in TPL to determine which one exceeds the other (col. 13, lines 51-65; col. 11, lines 31-46); and

f). **'means for verifying that the selected data record has not been modified since the time that it was copied to the second storage area by determining that the stored identifier is the same as the current identifier from the data page'** as a test is made to detect a consecutive update to the same data page by comparing the ORD# of the last entry of the transaction page list (TPL) with the ORD# of the new entry in the buffer control block (col. 11, lines 28-38).

b). **Josten** does not explicitly teach the identifier indicating when any of the data records contained therein were last modified.

Ponnekanti, however, teaches the log records contain only the PAGEIDs and the timestamps of the source page and the target page and the positions of the first and the last key that were copied (col. 11, lines 47-49).

It would have been obvious to one of ordinary skill in the art at the time of the invention was made to combine the teachings of the cited references because **Ponnekanti's** teaching would have allowed **Josten's** to enhance the speed in which the database server stores, retrieves, and processes particular data records as indicated by **Ponnekanti** at col. 3, lines 1-10 and col. 19, lines 40-50.

Response to Argument

8. Applicant's arguments with respect to claims 1-21 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Mohan et al. (U.S. Patent 5,455,946)

Mohan (U.S. Patent 5,333,303)

Matamoros et al. (U.S. Patent 6,161,109)

Zaiken et al. (U.S. Patent 5,907,848)

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leslie Wong whose telephone number is (703) 305-3018. The examiner can normally be reached on Monday to Friday 9:30am - 6:30 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E Breene can be reached on (703) 305-9790. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Leslie Wong
Patent Examiner
Art Unit 2177

LW
May 12, 2004